

WHAT IS CLAIMED IS:

1. A method of selecting a network sensor arrangement for detecting at least one physical phenomenon based on a quality characterization, comprising:

defining a sensing field at each point in the domain of the at least one physical phenomenon ;

determining well monitored regions and sensor holes in each sensing field;

determining a quality characterization of the network sensor arrangement for various applications;

visually displaying the quality characterization; and

selecting at least one sensor network arrangement based on the quality characterization.

2. The method of claim 1, wherein the sensing field at each sensor node is defined based on an inverse relationship between event location uncertainty and the ability to sense at least one physical phenomenon at that location.

3. The method of claim 1, wherein the sensing field at each sensor node is defined based on a goodness of fit of statistical assumptions about a physical state of each sensor node.

4. A system for selecting a network sensor arrangement based on a quality characterization, comprising:

a sensing application, circuit or routine that defines a sensing field at each node of the network sensor arrangement;

a determination application, circuit or routine that determines well monitored regions and sensor holes in the network sensor arrangement;

a characterization application, circuit or routine that determines a quality characterization of the network sensor arrangement for various applications;

a display device that visually displays the quality characterization; and

a selection application, circuit or routine that selects a network sensor arrangement based on the quality characterization.

5. The system of claim 4, wherein the sensing application, circuit or routine defines the sensing field at each sensor node based on an inverse relationship between event location uncertainty and the sensing ability of sensor network.

6. The method of claim 4, wherein the sensing application, circuit or routine defines the sensing field at each sensor node based on a goodness of fit of statistical assumptions about a physical state of each sensor node.
7. A method of determining the health of a sensor network, comprising:
 - a sensing mechanism that defines a sensing field at each node of the network sensor arrangement;
 - a determination mechanism that determines well monitored regions and sensor holes in the network sensor arrangement;
 - a characterization mechanism that determines a quality characterization of the network sensor arrangement for various applications;
 - a display device that visually displays the quality characterization; and
 - a mechanism that selects a network sensor arrangement based on the quality characterization.
8. The method of claim 1, further comprising:
 - determining blind spots in each sensing field.
9. The method of claim 2, wherein the event location comprises target location.
10. The system of claim 5; wherein the event location comprises target location.